

Amendments to the Drawings

The attached nine (9) sheets of formal drawings replace the original nine (9) sheets of informal drawings.

The attached sheets of drawings includes changes to FIG. 7. This sheet, which includes FIG. 7, replaces the original sheet including FIG. 7. FIG. 7 has been amended by adding the term “Yes” to the arrow from box 250 to box 252; adding the term “Yes” to the arrow from box 300 to box 302; and adding the term “Yes” to the arrow from box 312 to box 314.

Attachment: Replacement Sheets

REMARKS/ARGUMENTS

Claims 1-3, 5-16, 18-29 and 31-39 are in the case.

The applicant has studied the Office Action and have made the changes believed appropriate to place the application in condition for allowance. Reconsideration and reexamination are respectfully requested.

The Examiner has objected to the drawings on the basis that Figures 3 and 4 should be labeled "Prior Art." The applicant respectfully disagrees.

Elements of the illustrated embodiments of the inventive concepts include journal manager 130 of FIG. 3. As set forth in the present specification:

[0018] In accordance with one aspect of the illustrated embodiments, the journal manager 130 maintains a record 200 (FIG. 5A) of dirty stripes in a non-volatile memory such as the disk drives 150a, 150b ... 150n. As a consequence, the need for a dirty stripe record in a non-volatile memory such as an NVRAM in the storage processor 109 can be obviated, in some applications. In other applications, the record 200 stored in one or more of the disk drives 150a, 150b ... 150n provides a backup should the non-volatile memory or the storage controller fail.

The Examiner apparently concedes that the record 200 of FIG. 5A stored in a disk drive 150a, 150b ... 150n is an element of the illustrated embodiments of the inventive concepts. Hence, it is clear that the journal manager 130 which maintains a record 200 (FIG. 5A) of dirty stripes in a non-volatile memory such as the disk drives 150a, 150b ... 150n is also an element of the illustrated embodiments of the inventive concepts. FIG. 3 includes journal manager 130 and therefore clearly should not be labeled as "Prior Art." Similarly, it is clear that that a disk drive 150a, 150b ... 150n of FIG. 4 which has stored therein a record 200 (FIG. 5A) of dirty stripes is likewise an element of the illustrated embodiments of the inventive concepts. Accordingly, it is respectfully submitted that FIGs. 3 and 4 as described in the present specification are clearly NOT prior art and that the objection to the drawings should be withdrawn.

The Examiner has objected to the abstract. The abstract has been amended in accordance with the Examiner's kind suggestions. It is therefore respectfully submitted that the objection to the abstract should be withdrawn.

The Examiner has objected to the disclosure. The disclosure has been amended in accordance with the Examiner's kind suggestions. It is therefore respectfully submitted that the objection to the disclosure should be withdrawn.

The articles referenced in the specification have been submitted herewith in accordance with the Examiner's request.

The Examiner has objected to claims 4, 17, 30, 8, 21 and 34. The claims have been amended in accordance with the Examiner's kindly suggestion. It is respectfully submitted that the changes are for purposes of clarity and do not change the scope of the claims. It is further respectfully submitted that the objection to the claims should be withdrawn.

Claims 14-26 have been rejected under 35 U.S.C. §101 as being directed to nonstatutory subject matter. Claims 14-26 have been amended to clarify that the claims require a device. In that a device is of course tangible, it is respectfully submitted that the rejection of the claims under 35 U.S.C. §101 should be withdrawn.

Claims 1-39 have been rejected under 35 U.S.C. §102(b) as being anticipated by Dekoning et al. Applicant wishes to thank the Examiner for the courtesy of a telephone interview on September 21, 2006 in which the Examiner confirmed that the basis of this rejection is U.S. Pat. No. 5,778,426. No other substantive matters were discussed. The claims have also been rejected under 35 U.S.C. §103 as being obvious over the Dekoning '426 reference in view of the Dekoning U.S. Pat. No. 6,073,218 reference. These rejections are respectfully traversed.

For example, claim 1 is directed to a "method of writing data, comprising: storing a first record in a disk storage unit wherein said first record includes an indication that a stripe of user data and parity data stored across a plurality of disk storage units potentially contains a parity inconsistency wherein each indication includes an identification of the stripe being indicated and wherein each identification includes a volume number and stripe number; writing user data and parity data in said stripe indicated by said record; and clearing said indication. It is the Examiner's position that the Dekoning '426 reference teaches "storing data from the RAID disk drives to the cache where the data may be modified thereby changing both the data in the RAID stripe and possibly changing the parity of the data as well requiring the data to be written back from the cache to the RAID array and updating the parity also", citing col. 7, lines 12-52, and that such meets the recited record storing limitation. The applicant respectfully disagrees.

The Examiner's citation to the Dekoning '426 reference makes clear that the "dirty block is one which resides in the cache memory reflective of modifications required by a write operation from a host computer system." The Examiner's citation does not support the Examiner's assertion that any type of "record [is stored] in a disk storage unit wherein said first record includes an indication that a stripe of user data and parity data stored across a plurality of disk storage units potentially contains a parity inconsistency" as required by claim 1. Instead, the Examiner's citation merely discusses storing the dirty block itself in cache memory. On the other hand, once the data of the dirty block is posted to the disk array, the dirty block is effectively "cleansed" and thus is no longer a dirty block.

Claim 1 further requires each record stored in a disk storage unit to include "a volume number and stripe number ..." FIG. 2 of the Dekoning reference cited by the Examiner depicts "a simple, exemplary distribution of data and parity information into six stripes 200 on five disk drives 110 of a disk array." The Examiner's citation to the Dekoning '426 reference has no teaching or suggestion that the distribution of data and parity information depicted in FIG. 2 includes "a first record in a disk storage unit wherein said first record includes an indication that a stripe of user data and parity data stored across a plurality of disk storage units potentially contains a parity inconsistency" as required by claim 1. The Examiner's citations to the Dekoning '218 reference are similarly deficient.

Independent claims 14 and 27 may be distinguished in a similar manner. The rejected dependent claims depend either directly or indirectly from these independent claims. Accordingly, the rejection of these dependent claims is improper for the reasons given above. Moreover, these dependent claims include additional limitations, which in combination with the base and intervening claims from which they depend provide still further grounds of patentability over the cited art.

The Examiner has made various comments concerning the anticipation or obviousness of certain features of the present inventions. Applicants respectfully disagree. Applicants have addressed those comments directly hereinabove or the Examiner's comments are deemed moot in view of the above response.

Conclusion

For all the above reasons, Applicant submits that the pending claims 1-3, 5-16, 18-29 and 31-39 are patentable over the art of record. Applicant has not added any claims. Nonetheless, should any additional fees be required, please charge Deposit Account No. 50-0585.

The attorney of record invites the Examiner to contact him at (310) 553-7970 if the Examiner believes such contact would advance the prosecution of the case.

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